TWO LECTURES:

I.

LECTURES, BOOKS, AND PRACTICAL TEACHING;

II.

CLINICAL INSTRUCTION;

BEING INTRODUCTORY ADDRESSES DELIVERED IN THE UNIVERSITY OF GLASGOW, AND IN THE WESTERN INFIRMARY, SESSION 1877-78.

BY

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PRINTED FOR PRIVATE CIRCULATION

GLASGOW:
JAMES MACLEHOSE, ST. VINCENT STREET,
Publisher to the University.
1877.

I.

LECTURES, BOOKS, AND PRACTICAL TEACHING;

BEING AN INTRODUCTORY LECTURE TO A COURSE OF PRACTICE OF MEDICINE, 1877-78.

A QUESTION which has been of late a good deal discussed in medical councils and societies has been this—Whether lectures, as compared with books on the one hand, and strictly practical studies on the other, have not been allowed to assume a too prominent position in medical education? Or perhaps it would be a more correct way of representing the views of some persons to say—Whether lectures (*i.e.*, oral instruction *ex cathedrâ*) be not an exploded and effete system, soon to be elbowed out, or displaced entirely, by the other methods just named? As one holding a commission to teach by lectures in this University a subject of the widest range, and of the most far-reaching practical importance to all of you; as one, moreover, who has for fully a quarter of a century had this problem constantly presented to his mind amid all the changing lights of experience, and amid the actual necessities arising out of the teaching of large classes of students—not one of which many and varied groups of pupils has at any time appeared at all unwilling to be so taught—I have thought that it might be not uninteresting to you, and certainly not unbecoming in me, to anticipate our course of instruction in the present session by a few words on this matter, and to point out its bearing on the

serious business we have before us—the study of the practice of medicine.

I begin with one concession to the view that tends to look upon lectures as obsolete and effete. There have been, nay, perhaps, there still are, lectures of which it might very well be said that they encumber the curriculum of study. The whole processes and methods—I do not say of *medical* teaching only, but of the discipline of the human mind in almost every science and every art—have undergone immense changes even with the present generation, still more since the invention of printing made a great revolution in learning, and since modern inductive science carried the "dry light" of exact observation and experiment into every department of nature. In medicine, as in everything else, we simply cannot stand still, for stagnation is annihilation. If we have failed to accept the lessons of experience, and to adapt our teaching to the wants of the human mind, not to speak of the needs of the human body, in this nineteenth century of ours, then for us, truly, there is no room in a scheme of modern medical education. Call the instruction we pretend to give *lectures*, or call it what you will, it must be such as not only conveys to you the bare facts and doctrines of modern medicine, but such as is fitted to impress these upon your minds, and to inspire them with the spirit of modern medicine. Nay, I will go even further in the way of concession. It will not do for a lecturer merely to preach to, or at, his students now-a-days, in however elegant or appropriate words he does so. The end of a lecture (supposing that lectures are to continue to exist) is not to be attained merely by taking notes of it, and transcribing these, or getting them by heart. I have, indeed, in my time, known and attended lectures which were nothing but articulate text-books; and of such lectures it might very well be said that they were neither better nor worse than text-books; or, if anything, worse, seeing that they cost the labour of listening and transcription, while the text-book is procurable for a moderate sum, in the very words of the author, and is always at hand for consultation. Of lectures constructed on this plan I am no apologist. They belong to the past, and may

be justly considered as superseded in the present day, when text-books are abundant and good, and when the time of students has become valuable in consequence of the multiplication of subjects. It is impossible even to conceive, now, of a Professor of Physic after the type of the great Hermann Boerhaave of Leyden, whose fame, in the earlier part of last century, filled Europe, and whose system of doctrines, widely propagated after his death by Van Swieten and others, may be said to have dominated the whole academic teaching of most of the greater universities, at least down to the time when Cullen occupied this chair in Glasgow, and afterwards the corresponding one in Edinburgh; *i.e.*, till the latter part of the century.[1] Between Sydenham, in the middle of the seventeenth century, and Cullen, at the end of the eighteenth, there is certainly no name whose authority can be compared with that of Boerhaave as an expounder of medical doctrine; and yet, so great have been the changes in the interval, that his voluminous works are now, to us of the present day, almost as antiquated as those of Galen, whom he greatly resembled in the character of his intellect, and also of his influence over the minds of men. The causes of this immense influence, as an historical fact, and of its nearly complete extinction, it would be tedious to discuss at present in such a way as to make them intelligible to you; but in general terms it is safe to say this—that Boerhaave was essentially what I have elsewhere called a *system-builder;* an eclectic and a genuine system-builder, it is true, equally removed from charlatanism and from one-sided enthusiasm, but still essentially a dogmatist—*i.e.*, one whose influence as a teacher depended largely upon the acceptance of his fundamental doctrines, or *dogmata*, as regards the nature of disease in the abstract, its causes, and its cure. The aim of Boerhaave was obviously to build up a coherent, and all but complete

Boerhaave was born in 1668, and died in 1738, having lectured on the Institutes of Medicine from 1701 onwards, and been elected to the chair of Medicine and Botany, at Leyden, in 1709. Cullen began to lecture on the Practice of Physic, in Glasgow, in 1751, and died in Edinburgh in 1790. His "First Lines of the Practice of Physic," was published, in Edinburgh, in 1777.

structure of preliminary doctrines or aphorisms, on which, as on an hypothesis, all the detailed investigation of individual cases or diseases was thereafter to rest. His method, therefore, was essentially that of the theologian; like that of Calvin in the Institutes, for example, or of Augustine in that great system of mediæval doctrine which was called Catholic, because it was supposed to be for all time and for every place alike, and which, in fact, has thus far corresponded with the title, that it was adopted in its main features and logical sequence by the Reformers no less than by the Church of Rome. The system of Boerhaave was eclectic; that is, it professed to be drawn from a comprehensive study of all previous doctrine in all ages, but especially in the immediately preceding age; it adopted freely whatever seemed to be well founded in the teaching of the mathematical (or rather mechanical) and of the chemical schools, and did not disdain the acknowledgment of its obligations to the past; but the ultimate end was to be a *system, i.e.*, a scheme of doctrine so absolutely true, complete, and logically coherent as to have a reasonable look of *finality* about it. Hence the very language of Boerhaave, and of all his school, has become obsolete, because men have ceased to think of disease in general, or of diseases in detail, in terms of his underlying hypothesis. Take, for example, the primary divisions of his classification:—Diseases of a simple solid fibre; of a weak and lax fibre; of a stiff and elastic fibre; of weak and lax viscera; of too strong and rigid viscera; from an acid humour; from a spontaneous gluten; from an alkaline cause; all these are terms which convey absolutely no meaning, or scarcely any meaning at all, to a pathologist of the present day; and yet they are of the very essence of the doctrinal system of this great teacher, whose authority extended at one time from Vienna to the "penitus toto orbe divisos Britannos."

You will not, I trust, suppose me to be making these references to Boerhaave with the view of unduly depreciating one whose character and immense erudition, added to vast stores of personal experience, give him an ample claim to all the fame he acquired, and to a permanent and honourable

place in the history of medical doctrine. My object is not to undervalue Boerhaave, but to show you wherein the modern spirit and method differ from his. Even in the middle of the 18th century, such methods and systems as that of Boerhaave are already, to use a Darwinian phrase, a *survival* from the past; the great original masters of research, Morgagni, for example, are found to repudiate, or rather to set them aside almost without effort; they refuse to be bound by an hypothesis or by a system of doctrine, be the authority for it ever so eminent. Systems, it is true, continue to spring up; Stahl and Hoffmann divide the schools in opinion almost contemporaneously with Boerhaave, and system-building goes on, pretty steadily, up to the very close, at least, of last century, when it has, however, degenerated for the most part into a kind of discredited charlatanism; the pretentious systems of Brown and Hahnemann, for instance, being distinguished chiefly by their abnegation of all genuine science, and indeed almost unconcealed contempt for it. The aim of these theorists was to establish such a general series of postulates with regard to the origin of all diseases as should dispense with all knowledge in detail of the real facts; so that the treatment might be decided upon *a priori* considerations, almost without reference to experience. Even during the present century there have been more or less similar attempts, as those of Broussais in France, Rasori and others in Italy, to proclaim absolute first principles of disease and of its treatment; but in general it may be said that the characteristic of the period which includes the great names of Laennec and Louis, Abercrombie, Richard Bright, Addison, and Stokes, Skoda and Oppolzer (to mention no more recent ones), has been a growing distaste for dogmatic assumptions, and a growing reliance upon the absolute facts of experience, collected with all the aid of new methods of investigation, and submitted to a cautious and searching, often a precise and numerical, analysis.

I need not stop at this stage to explain the brilliant results of the modern era of investigation, as inaugurated by these and other great names, nor to insist on what has been done for us

by the stethoscope, microscope, ophthalmoscope, thermometer, test-tubes, and other instruments of modern clinical research. These will be the very material, as it were, of the present course of lectures, and we need not anticipate by enlarging here upon the grand discoveries in diagnosis, and in medical practice generally, which have emerged during the last fifty years. What I have to insist on, however, is the change that has become necessary, as a result of these discoveries, in the method of conveying instruction.

I have said already that in my opinion no teacher or professor of the type of Boerhaave is ever again likely to attract the attention and occupy the mind of his generation as he did. We may rest assured that no system of medical doctrine will ever again be worth recording after the fashion of the aphorisms of this great man, illustrated in the lengthened and exhaustive "Commentaries" of his pupil Van Swieten, who tells us that he attended the lectures of his "great master, both public and private, for the space of nearly twenty years," in order to have the opportunity of reducing to order, and promulgating in their fulness, all the wise sayings of so great an authority. I fear it must be admitted that in these perhaps degenerate days so gigantic a task would be unavailing, were it even fulfilled, as regards the greatest of our professors, in a compilation as unwearied, exact, and, on the whole, as readable as that of this learned Hollander. And this, because no body of aphorisms whatever, "concerning the knowledge and cure of diseases," has any chance of enduring for twenty years without becoming in some important, and perhaps vital, points open to serious correction or revision; or perhaps antiquated altogether, and obsolete. Within the last ten years, for instance, of our present experience, the whole doctrine of fever, of tubercular disease, of infection and contagion, to take only three examples out of a multitude, has been, and is, undergoing changes of which it may justly be said that we know not what an hour may bring forth. How is this body of floating doctrine to be crystallised into aphorisms, and endowed with what may be called dogmatic authority and

stability by even the most energetic of professors and commentators?

Again, the application of the ophthalmoscope, the thermometer, the laryngoscope, the sphygmograph, and other graphic methods, to clinical research in various internal diseases, is at this moment rendering the most advanced text-books written even ten years ago comparatively valueless over a large field of medical observation. How are the aphorisms of any professor, if collected into a system such as is found in Van Swieten's "Commentaries," to escape from the influence of "tempus edax rerum" for double that period of time?

Again, the researches of Drs. Fraser and Crum Brown, of Lauder Brunton, of Rutherford, Dewar, and M'Kendrick, seem to be not only introducing new remedies, but entirely new experimental data and principles for guiding us in the use of the oldest and most familiar remedies, amounting to a probable revolution in our existing science of therapeutics. How is the "cure of diseases" to be formulated in aphorisms even for a single generation, in the face of these facts? You have only to compare the first with the last edition of Sir Thomas Watson's famous and most admirable book, and to read carefully what is written in each edition on such subjects as the treatment of pneumonia, of diarrhœa and cholera, &c., to see that even short of what may be called the most unsettling novelties of modern doctrine in therapeutics, a period of twenty or thirty years is now equivalent to a revolution, or rather a series of revolutions, in all that may be taken for established doctrine in the treatment of some of the most important diseases. And in nothing is the reputation and character of that venerable physician more justly esteemed, than in the remarkable and rare openness of mind which has enabled him to yield frankly and without any false pride of authority, to the force of evidence, and to abandon successive positions which had become untenable, without thereby impairing in the least the regard that men have all along paid to his mature and highly cultivated judgment on those subjects on which he is still an authority of the first class, whereon a lifetime of carefully cultivated ex-

perience entitles him to speak to us in language as lucid as are the ideas from which it springs.

You will observe, then, gentlemen, that professors and text-books are alike subject to one great cause of instability in the present day—the fluctuating and revolutionary state of the medical science and art. It is vain to dispute this fact, or to fight against it. The text-book must be re-written, or completely revised, edition after edition, or it must perish. The professor's lectures must be freshly brought up, altered, amended, often completely remodelled almost from year to year, or they are naught. Now what is the great and abiding lesson from this, for you and for me; or rather, how can any one teacher, in any one session, so address you as to convey to you the most wholesome and most abiding kind of education in the Practice of medicine? And the question is not at all here, how he is to establish the greatest reputation for himself; but how he is to do the greatest amount of practical good to you. The two objects may be more or less associated; but the latter is the one in which you are most directly interested at present.

I will assume, for a moment, and I think I may fairly assume, at this stage of your progress, as within the experience of all of you, that to learn a science or an art from the personal instruction of a living man, is something very different from learning the same facts out of a book. In the book you have the facts, no doubt, and the arguments too; nay, you may have them much more fully and exhaustively than they can be presented by the living voice. But in every demonstrative and experimental science and art there is much that the average man cannot learn out of a book at all; and much that, even if he should have committed the whole book to a retentive memory, he had far better learn over again, from experimental and personal teaching. If we could discover what is that subtle essence which gives the face and voice of a teacher of the right sort so much more power to impress truth of this kind than a book has, we should have mainly solved the problem of constructing a course of lectures in accordance with the wants of the present time.

Now, if you will think of it, I believe you will find that the chief advantage that a living man has, to you, over a book, is that you have, or may have, a more living *faith* in him; *i. e.*, you have means of testing his statements, and submitting his doctrines to criticism and personal inquiry. Of course you may be quite wrong; the professor may be wanting in knowledge himself—an ignoramus or a humbug, and so quite unworthy of your faith. But still, on the other hand, if he is a right-minded man, and tolerably sure of his ground, he will lay himself open to your inquiry and criticism, and if he is not sure of his ground he will tell you so, and make a clean breast of it. Now, when I turn to any of the commoner class of text-books, there is nothing I am more struck by than this; that in the effort after completeness all kinds of supposed facts, and all kinds of theories, are jostled in, somehow, *pell-mell;* with the result that the anxious inquirer or reader is often greatly puzzled in trying to remember what is of the first, and what only of secondary importance. Let us say nothing, for the moment, of positive inaccuracies and errors. The great fault of almost all books, and of many lectures, to the student is, in the wise words of Dr. Allen Thomson last autumn, that they attempt too much. They lose sight of the fact that a very little real knowledge is all that can profitably enter the human mind, and still more the average human mind, in a limited period of time. All that is over and above this is mere learning by rote; or in other words, what is commonly though inelegantly called *cram.* And out of *cram,* though you may make a bookworm or a prodigy of learning you cannot possibly evolve a physician, or even a reasonably safe practitioner of the healing art. For you may take it as quite established by experience that you, students, let us say, of the third year, *cannot,* in one or two sessions, learn the whole art and mystery of the Practice of Medicine. All that you can possibly do is to learn well a few of the better known and more clearly established facts and principles; and, what is most important of all, in mastering these thoroughly, you can

so inform your minds as to render them a fitting soil for the further teaching derived from experience, from reading, and from social and professional intercourse. In other words, in learning a few things well, you can teach yourselves, or be taught, how to learn many other things well by and bye.

Now here, I think, is the special function of the professor, as compared with the book. He has not only to direct you *what* to learn, but he has to teach you *how* to learn. And above all, he has to present himself to you in the attitude of one willing and able to learn himself—*naturæ minister et interpres*, as Lord Bacon has it. For, in a highly progressive science and art like medicine, the first duty of the teacher is to inform you that it is progressive; and this he can do best, or perhaps only, through his own personal example. He will teach you facts, not as closing the door, but rather as opening it to new facts; he will teach you principles, but not as fixed and unalterable dogmas. To quote Lord Bacon once more, he will deal much in the *axiomata media*, or provisional generalisations from facts already known; little in *first* principles, or speculative and abstract hypotheses as to the nature and causes of disease. Thus he will endeavour to imbue your minds vividly with what is least doubtful and most important; but along with this he will not forget that the first and last of lessons to a physician, or from a physician to students of disease, is, how and when to acknowledge ignorance and suspend judgment.

A distinguished, but I believe still young, professor of physical science has lately contributed some papers to certain periodicals, the object of which seems to be to discredit religion, or at least theology (which he believes to be a superstition), on the ground that it is *immoral* to believe what cannot be definitely proved. Now, I have nothing to do here with the opinions of this gentleman on the subject just mentioned; but in the application of his thesis to medicine I am confronted with the difficulty that in almost all the cases in which immediate action must be taken in very critical circum-

stances, the action of the physician (and the same applies often to the surgeon) must be taken upon a belief which cannot be definitely proved in the manner of a deduction from first principles, which mode of proof is evidently the desideratum, or, at least, the criterion of Professor Clifford for theological truth. A man is much hurt and shattered, and is in a state of considerable collapse; you propose to amputate a limb. Will it save him? or will it even do any good? You cannot *know;* you cannot *prove* it. All you can do is to make a rapid survey of his organs and functions; judge as well as you can of his vital resistance, and act accordingly. You form a provisional belief; you act upon it, as you think, for the best, and you leave the rest to God. All this is opposed to Professor Clifford's ethical dogma. He would have us in all such cases remain in unbelief, I suppose, until the death or recovery of the patient spontaneously solves the difficulty. In like manner, here is a patient very gravely ill of typhoid fever, or of pneumonia; he is balancing between life and death; what are you to do? Perhaps nothing at all, or, at least, nothing that can be called active treatment. Here is, possibly, a course in accordance with the position that Professor Clifford would advocate. But no; to do even nothing at all that is active in a grave case of this kind you *must have a belief,* which, though founded on evidence, is not by any means proved as regards this particular case; the belief, viz., that the case will get well, or, at least, will not be the worse if so left to itself or to nature. If you did *not* so believe, it would be criminal to omit remedies. But suppose, on the other hand, that there presented itself some remedy more or less probably applicable to the symptoms; say, for instance, antimony, or stimulants, or camphor and chloroform, or the cold bath. Are you to use any of these, and which of them? Here again you must act, if you act at all, on a belief founded on evidence, but certainly not proved as regards this particular case. The man may die; you may have in the end, a misgiving; no matter; you were bound not only to believe, but to act upon your belief. No doubt the milder

and less heroic practice of these modern days in many acute diseases is largely based upon scepticism as to the disturbing kinds of remedial agents formerly so much employed; but it is also based upon a growing belief—the expression of which, however, is as old as the Hippocratic era, that "our natures are the physicians of our diseases."

View the matter as you will, you cannot, in medical questions of life and death, avoid coming to some conclusion or other as a basis for action. The conclusion may be, and often ought to be, only provisional. The true and wise physician is he whose knowledge, derived from large experience and careful reasoning, enables him to appreciate at once, with the least amount of delay and disturbance, every important symptom and physical sign bearing on the interests of the patient; who, knowing as far as may be the state of every organ and part, within and without, and rapidly summing up in his mind all the available evidence as to the natural termination of similar cases, the probable causes, and the probable results of remedies, is able thus to arrive at a thoroughly *reasoned*, but not always *proved*, conclusion as to what ought to be done in this individual case. In other words, you arrive at a belief, and you sometimes or usually act upon it under the very conditions which, when applied to theology, Professor Clifford denounces as immoral.

Now, think of it for a moment. What is there that can give you a just confidence in action and in counsel (I do not mean blind rashness and foolhardiness, which are only too easily acquired by some) in cases like these, where the issues of life and death are, as it were, immediately before you, and your minds must grapple to a belief of some kind, were it only a provisional belief, fit to guide the mind to a course of conduct; *i.e.*, to a course of action or inaction (as the case may be), which you can justify to your own conscience, and to the inquiries of others? Nothing less, nothing else than an instinct of the mind, which I will not hesitate to call *faith*—the "evidence of things not seen"—which, in the case of

medical faith at least, ought to be founded on knowledge as far as it goes, but which reaches beyond knowledge to a probable conclusion, and acts at once upon that. The difficulty is to preserve this power of acting on the best knowledge attainable, even though imperfect, and yet to keep the mind open to future enlightenment; and this it is which I called a moment ago the faculty of *suspense of judgment.*

Now, in the case of beginners in the art, all these various phases of belief and conviction, not to say knowledge—these complex varieties of mental attitude, so to speak, must be gone through many times over, and under the direct personal guidance of one who may be presumed, from previous knowledge and experience, to have passed through them all himself; one who can realise the difficulties of younger men in what must be to them a new field of observation, and of whom they can feel absolutely sure that he will tell them what he knows and believes frankly, but at the same time will never affect, like the charlatan or the dogmatist (for very often these are only two names for one and the same person), a knowledge that is not real, a belief that is not founded on some fair and reasonable sort of evidence. This, I need not tell you, is a kind of guidance that you can never, or only rarely and imperfectly, get in the pages of a book. It can only result from the living presence of a man. And such is the perversity of the human mind, so great its tendency to crystallise opinions into dogmas, that your first impression will always be that the views, opinions, or doctrines of the man are of more importance than the man himself; whereas the true living guidance depends entirely on the opposite presumption, viz., that the man himself is more to you than any of his dogmas. And hence it reasonably, nay, irresistibly, follows that in the just and true order of events your first exercise of medical faith must be faith in your guide; a faith not blind nor unreasoning, but founded, like all true faith, on evidence, and yet accompanied, as we have said a moment ago, by suspense of judgment. How are you to acquire such a faith in any man in reference

to the important questions which form the material of this course of lectures? Partly, perhaps, from what you know of his social and professional position, and from his being set over you as professor. But chiefly, I think, and far more really, by your actually and personally seeing him at work in his department, and by, some of you at least, working along with him.

Here we touch, I think, the very root of the matter. Systematic lectures, which are mere repetitions of a text-book, are not, indeed, wholly useless, but they never can rise above the usefulness of a text-book, any more than water can rise above its fountain-head. But systematic lectures that are informed by the spirit of a living man are valuable to you above a text-book, just in proportion as you have reason to have a living faith in that man, and in his ability to guide you aright. The territory of disease is, in a not inconsiderable part of it, an unknown territory; wholly so to some of you, largely so to all of you, to all of us. But there is a map of it, and we have to study it by the map. We cannot explore the whole of it for ourselves, nay, not even the millionth part of it, with the materials at our command. But the man who, being an actual explorer, and known to you as such, will sit down with you and discourse in a reasonable and perfectly frank manner about this unknown country; who will tell you what he has himself seen, and what he knows only by hearsay; who will anticipate your difficulties, and inform you in some detail what you have to look for in following this or that river course, threading this or that impenetrable forest or jungle, crossing this or that mountain pass, will always have a value for you above that of the mere book or map. And if he can explore even a little bit along with you, from day to day, or can so instruct others that the facts of the lectures come to be illustrated, and the methods of exploration shown forth, under his guidance, then the advantage you will derive from his map, and his explanation of it, will be immensely and indefinitely increased.

Now, gentlemen, for more than twenty years, in Edinburgh

and in Glasgow, I have taught the Practice of Medicine systematically, by lectures and by associated practical or clinical instruction, after this manner, or at least in this spirit. Do not suppose that in saying this I am making a merely personal claim, for no one can be more conscious alike of the difficulties of the task, and of errors and imperfections in the execution. But such has been my method, and to the perfecting of it in detail, from year to year, my whole strength and energy have been carefully and deliberately applied. When the clinical professorships were founded about three years since, this question of method arose in a very decided and palpable form, as a question of mutual adjustment of rights and duties. I need not trouble you with the details, for they are written down in minutes, and illustrated by facts. My position, from first to last, has been this. Clinical teaching is a most important, nay, an indispensable part of your curriculum, but from the very nature of it, being, as its name implies, *bedside* teaching, it cannot possibly be done adequately, in a large school like this, by any one, or indeed by any two, men. Therefore, while I am glad to have a colleague in this most important kind of instruction, I mean to be, and to continue, a clinical teacher, as long as health, and strength, and energy permit. The hospital is my laboratory, the wards are my field for practical illustration and instruction. I am glad that others are there to share the work, but I by no means intend to demit my own share in it, which I reserve in the interest of my class and of my successors, as much as in my own. These claims were fully admitted at the time by the whole of my colleagues in the Medical Faculty; they were equally admitted by the aspirants to the clinical chairs, and by the promoters of them; they were embodied, as I have said, in documents which received the assent of the Senate and of the University Court, and which show that my clinical teaching is as much a part of the authorised curriculum, while I remain a physician to the Western Infirmary, as my systematic teaching.

This being said, I will go on to add that my personal desire is not rivalry, but co-operation. I look upon the Western In-

firmary (viewing it for the moment only from the point of view of a teacher of medicine) in the light of a great instrument affiliated to the University, for the purpose of manifold and many-sided practical instruction; and I am well content to occupy a place in it as one of three physicians having, as nearly as possible, equal rights and equal duties. I could even wish, in your interest, that there were more wards, more physicians, and more surgeons, engaged in clinical work; being satisfied that the more the instrument is developed, without exclusiveness or partiality, the more the University will be strengthened, and your essential interests advanced.

II.

CLINICAL INSTRUCTION;

ITS REAL IMPORT AND ITS METHOD.

BEING AN INTRODUCTORY LECTURE TO A COURSE OF CLINICAL MEDICINE, 1877-78.

A FEW days ago I had occasion to discuss, elsewhere, the relation of lectures in general, and lectures on the Practice of Medicine in particular, to books on the one hand, and to practical or clinical instruction on the other. I now propose to take up more in detail the questions proper to this course, viz.—What is Clinical Instruction? how does it stand related to Clinical Lectures? and how ought it to be conducted so as to utilise to the utmost the practical opportunities, alike for teaching and for learning, belonging to the medical service of an hospital like the Western Infirmary? The few introductory remarks I shall make to you on these topics will not, I trust, invade too much the actual work to be performed in this course; and they will give me an opportunity of stating, once for all, the results of an experience acquired during more than twenty years of service as an hospital physician, and as a clinical teacher.

1. Clinical instruction is, as its very name implies, *bedside* instruction. The very idea of clinical instruction, properly so-called, carries with it that both instructor and instructed are to be in presence of the patient, and learning the lessons of

disease together from the absolute source of all real and final knowledge in respect to disease—*the sick man.* The lessons of a private practitioner to his apprentices, in the days when apprenticeships still existed, were true clinical instruction, and, with such a man as Abercrombie, who practised this method exclusively, they must have been clinical instruction of the best and highest kind. A well-conducted dispensary, in which the physicians not only see their patients at the hospital, but follow them up at their own homes, and along with their pupils, is also a very fruitful and admirable field for true clinical instruction, and one which only requires competent and devoted men to make it at least equal, if not superior, to any other. Strange to say, however, neither of these are counted as formal clinical instruction in your curriculum of study. Probably the difficulty of securing adequate regularity of attendance, and a sufficient body of well-trained and thoroughly competent teachers, may be the reason why every kind of medical attendance upon the sick poor has not been more or less formally utilised for this purpose. But having for several years pursued this method, in connection with the Royal Public Dispensary of Edinburgh, where I had usually classes varying from half-a-dozen to twenty pupils, and having given the hours of many a long afternoon to conferences with some of these, in almost all the "closes" between Holyrood and the West Port, on the cases of disease which were too urgent to be visited otherwise than at home, while others were seen at the Dispensary on two fixed days in the week, I am in a position to affirm that it is quite possible, and would be, I think, very desirable for you, that more should be made of this form of clinical instruction than has hitherto been done in Glasgow. Here, however, I am restrained by the consideration that I am not likely to be able to work in this direction myself; and I can only, therefore, commend to the junior physicians and surgeons of this hospital, and of the Royal Infirmary, the plan of clinical instruction to which I refer, of which the German *Poli-klinik*, or *clinique of the town*, is one of the numerous modifications. One thing, indeed, is necessary to

prevent this mode of instruction from becoming a mere sham and an abuse of the name of clinical teaching, viz.—a proper subdivision of the work; and, as arising from this, a sufficient amount of time given to it. Hurry-scurrying through thirty or forty cases in an hour, as is done in the out-practice of many hospitals, is not instruction, but the reverse; or, if instruction at all, it is simply instruction in bad habits—absolutely fatal habits—of inaccuracy and want of thought. It is painful to me to be led even to allude to this subject; for it is not alone the injury done to the sick poor, in many cases, but the still greater, because persistent and absolutely irremediable, injury done to the medical art and to the students and junior practitioners of it, by the system of hasty consultations involved in the vast and quite over-grown out-practice of many hospitals in London and elsewhere, that demands a word of stern and sad remark. What is to become of young men trained in such habits, in after life, if at the very outset of their career it is made plain to them by the bad example of their seniors, that five minutes, or three minutes, or two minutes, perchance, is all that can be spared for the investigation of a case of serious internal disease, with a view to its treatment? if, moreover, this rapid and unexacting frame of mind is identified in the imagination of the junior with something that is called "practical," which may be roughly defined as the faculty of transacting the greatest possible amount of "business"—*i. e.*, making the greatest number of blind guesses, and writing the greatest number of brainless prescriptions, in the shortest possible lapse of time? I believe, speaking as a man who knows what medical consultations are, and what amount of time and care they really require, that no more ruinous lesson could possibly be taught at the outset, than this; and, on the other hand, that nothing is more absolutely essential for true clinical instruction than an abundance of time, so that every case that is made the subject of remark at all, shall be, as nearly as possible, completely investigated according to all the lights that can be brought to bear upon it, alike from ancient experience and from modern science. And this is perhaps the one diffi-

culty in realising true clinical instruction of the best kind, as a rule, otherwise than in hospital wards. Young practitioners are too inexperienced, old practitioners are too busy, to give it in a really profitable manner, from the ever-increasing and over-abounding stores of general and miscellaneous practice. "While the grass grows, the steed starves;" while the multitude of cases is being thus over-hastily seen, the mind of the pupil, far from being enriched thereby with really valuable experience, is *sterilised*, so to speak, by acquiring the fatal habit of passing diseases under review superficially, and without anything like due investigation; so that he becomes, in the end, like the veriest empiric, a mere man of routine; with this difference, and one not always in his favour, that he has been during his pupilage artificially fed and nursed, so to speak, on books and lectures, and finally exalted, by the possession of a degree or diploma, into the conceit of himself that he is competent to know and to treat all manner of diseases—the fact being that he has not learned even the very elements of a true *diagnosis*.

2. Clinical instruction, then, is, as we have said, bedside instruction; but it is, or ought to be, such bedside instruction only as is methodically conducted, and rendered, as nearly as may be, complete. And, if you will think of it for a moment, the *method* of the instruction is to you quite as important as even the facts, or substance of the instruction. For it is but little profitable to you to see a patient lying in a bed, and to hear *me* pronounce it a case of pneumonia, or of Bright's disease; what is wanted is that *you* should be able to see why and how this conclusion is arrived at. And in the order of importance to you, the "how" is first, the "why" second; because the personal realisation of the facts, the investigation of the phenomena, to speak in scientific phrase, should precede, and not succeed, the formation of an opinion about them. Hence it is scarcely clinical instruction at all, in the proper and just meaning of the word, for a physician merely to lecture about a case, and to tell you in detail his opinion about it. What is really wanted is that he should place you, or at least some of you,

and as many as possible of you, in the position to form your own opinion about it—guiding you, of course, by his more matured opinion, but only so as to show you the way, and prevent you from making mistakes. Nay, even your mistakes are capable of being turned to account in a system of true clinical instruction; the mistake of one man is often the best kind of instruction for the many. And I would most seriously exhort you in all cases to be prepared to take this view of mistakes, not to laugh at them, or to scorn them, in each other, but to study them as the true path to knowledge; the practical exhibition of the fallacies and difficulties which will beset you all in your way through life. You will therefore greatly assist each other, and me as your instructor, if you frankly submit yourselves to questioning on all facts emerging at the bedside; for it is only by the answers of the individual man that I can discover the needs of the whole class; and only through your failures as individuals that the standard of knowledge and practical efficiency can be raised for the whole. You will very soon arrive, indeed, at this belief for yourselves, if you will only take note that we never reprove or deride any one on account of a mistake, but always use it as the means of discovering how far a difference of opinion is legitimate, and how far it is shared by others, or how far it may be removed by new observations; and in carrying out this plan at the bedside, you will also observe that I prefer to throw my own opinion into the common stock, as it were, and to submit it to the criticism of facts, like the others, rather than to impose it upon you as final under almost any circumstances.

3. You will observe that I have said little hitherto about Clinical *Lectures*, except by an allusion, perhaps, to show their inadequacy as a means of clinical instruction; and it seems, therefore, rather incongruous to have to remark, at this point, that it is *only* the clinical lectures that are, generally speaking, recognised in your curriculum; in other words, the real essence of clinical instruction, that without which it is not *clinical* at all, is passed *sub silentio*, or altogether neglected and omitted. This is certainly not as it should be, and I trust that in any

future regulations of the authorities, or discussion in the Medical Council, this view of the question of clinical instruction will receive due consideration. As matters stand at present, the clinical or practical department of your instruction is, just as much as any other, open to the charge of being overmuch dependent upon lectures; and it is far less excusably so dependent, inasmuch as it is this part of your medical instruction that might be expected to be the corrective of any excess of lectures elsewhere. But, not to prolong remarks upon a topic that is not for you but for your seniors to judge of, I will hasten to add that there are serious practical difficulties in the way of securing the regular attendance of many students in the wards, to the extent that might harmonise thoroughly with the idea of an absolutely clinical or bedside instruction, in the strictest sense of the word. My own interpretation of the formal and official requirement is simply that by "lectures" is meant a stated meeting with the whole class, checked by roll-call; whether the instruction be given in a separate lecture-room, or in the ward. While, therefore, we aim at fulfilling the regulations which require two "lectures" to be given in the week, we do not rest upon that regulation, or adopt the ordinary method of simply *lecturing about* cases, instead of actually *examining* cases of disease, as the basis of our clinical method. At one of the two "lectures," accordingly, which occur statedly as part of the weekly programme, I assemble the class in the lecture-room, as assigned to me by the Managers, viz., on Tuesdays; at the other, on Fridays, I arrange to have a regular meeting in the ward, equally subject to roll-call, and with every possible arrangement made for your physical comfort, as well as for bedside instruction, such as can from its nature be appreciated by a considerable number. But whatever be the form of the assemblage, the lecture (so-called) is simply the condensed and ordered expression, or the interpretation, of observations made, and of facts elicited in your presence in the wards; the lecture, therefore, is in all cases most profitable to those who have taken some pains otherwise to know personally the facts. I cannot refrain from adding here that I have listened to clinical lectures

both at home and abroad, which were in no respect clinical in any true sense of the word. One distinguished Professor in Paris, during one of my visits to his hospital, was giving a whole series of clinical lectures on the properties, physiological and pathological relations, and therapeutic uses of arsenic. I could only wonder if he was also getting up his materials as he went along by giving arsenic all round to all his patients. Another professor, in Germany, on one occasion when I was casually present, had been giving two whole days (and two hours each day) in succession, to a complete systematic exposition of the entire subject of hemiplegia and the allied forms of paralysis, as illustrated clinically by one case only; and the worst of it was, that this was really a clinical lecture in external appearance at least; for the unhappy patient was present throughout this remorselessly long-winded harangue, and was doomed to listen from his bed (hauled into the lecture-theatre) to a statement at full length of the nature of the disease, causes, predisposing and exciting, pathological anatomy, symptoms, diagnosis, prognosis, and treatment, without even one word, so far as I observed, of kindly sympathy or consideration for *him*, any more than if he had been an inanimate object. This was the most cold-blooded exhibition I ever saw or heard in the shape of a clinical lecture; and, notwithstanding the great reputation of the professor, and my anxiety on other grounds to follow him, I was so unfavourably impressed, that I never again ventured within that professor's lecture-room.

4. This leads me to make another remark about the proper conduct of a course of clinical instruction. Bedside teaching is not what it professes to be—viz., clinical in the highest sense, unless, besides being a discipline for you in regard to the facts of disease and the methods of observing them, it is also made an equally careful training in respect of the moral relation between physician and patient. I will confess to you at once that there is some risk of this aspect of the matter being forgotten at times, and I am by no means one of those who maintain the absolute compatibility, under all circumstances, of the interest of the patient with that of the clinically-instructed

pupil. There is a risk, as I have already said, that clinical instruction may be conducted in a cold-blooded and heartless manner, to the detriment of the patient. But on the other hand I fully believe, and indeed know from experience, that the sick poor derive, on the whole, a literally immense amount of benefit which would otherwise not accrue to them, from the thoroughly methodised, orderly, and elaborate investigation which their cases undergo as a consequence of clinical instruction. Comparing, as I am able to do every day, the diagnosis and even the treatment of disease in hospital patients, with what is the average lot of the same class of patients out of hospital; nay, even comparing the indoor hospital patient, the subject of clinical instruction, with the wealthy man or woman moving in society, who consults the most fashionable physicians, and has his or her family doctor always at hand, I am almost sure that the balance of advantage is often on the side of the hospital patient; and this, just because of the thoroughness of investigation, and the methodical care in regard to all details of treatment and nursing, which obtain in a well-regulated hospital ward. But I would not have you suppose that these advantages of our clinical method can be secured to the patients, say of the Western Infirmary, without your co-operation; without the whole scope of our clinical teaching being such as engages, both in your case and mine, the heart as well as the head. I will utter no mere vague sentimentalisms on this subject, for it is one where an honest, but not overstrained, human sympathy with suffering humanity is all that is required to guide you aright. What is necessary, however, is that you should clearly realise to yourself the position; that if I, for example, forget for one moment, or if you allow or oblige me to forget for one moment, the real interests of the patient as they appear to a kindly sympathetic physician, it is not only an injury done to the sick man, but also a violation of the law of true clinical instruction. For what I have got to teach you, and what you have got to learn, at the bedside, is nothing less than the whole art of the physician; and this includes, most assuredly, as one of

its most important elements, the art of securing the confidence and goodwill of the patient.

5. Now to apply these remarks regarding clinical instruction to our own work in detail. We require, in the first place, a group of clinical clerks, and these we shall select, to the number of at least a dozen, from yourselves; but by this I mean not necessarily from the enrolled members of this particular clinical class, but from the undergraduates who may prove, by clinical examination or otherwise, the possession of the necessary qualifications. To these gentlemen will be committed the keeping of the ward journals, in a great measure; with the proviso, however, that in most cases either my assistant and *chef-de-clinique* (as the French say), Dr. Gemmell, or the resident physician, or I, shall have revised and critically compared the record with the facts of the case, before it is finally inscribed. In this critical comparison there will necessarily arise most valuable material for bedside instruction; therefore the examination of the details of the clinical record will usually, or as much as possible, take place in presence, not indeed of the whole clinical class, but of a select number of junior students. Use these opportunities well, gentlemen, for they are invaluable. The record, in its completed form, will be, it is to be hoped, a record of facts; but even facts are often tinged, or modified by opinion; and where reasonable differences of opinion arise, we shall be careful not to extinguish these, but to preserve them in the form of the record itself; which will in all cases be authenticated by the name of the reporter, and often of those also who have concurred with, or differed from, him in his statement of particular facts. In all cases, moreover, we require the *date* of the observation, and as much as is convenient, the order in which the facts were elicited, to appear upon the face of the record. We allow no subsequent correction or revision of this (saving for plainly clerical errors), except in the form of a marginal or foot-note, similarly dated; and for this purpose we keep, purposely, a blank page open opposite every written page of our hospital report. Some of

the most instructive of our bedside conferences have often arisen upon these late verifications, or corrections, of doubtful points in the original record of a case. When, in the course of an ordinary ward visit, I personally dictate the report of a first or of any future observation, it is similarly authenticated, and equally open, as in the case of the report of a junior, to future criticism or correction; and many of you can bear me witness that I never hesitate in allowing an error, or a doubtful expression, to be fully and deliberately discussed, and the correction, if necessary, duly inscribed, as such, upon the margin. Indeed it is in these very difficulties and fallacies of observation that we frequently find the best materials for our clinical lectures. Finally, after a certain period of observation, and after a certain number of presumably exact details have been inscribed, we make upon the first blank page opposite the beginning of the case, a *summary* of the whole observations, which in many cases, but not always, includes also a definite diagnosis, or at least the materials of one. On a second blank page we inscribe a connected statement of the details of treatment; on a third, the whole series, or a carefully-constructed abstract, of temperature observations; on a fourth, urinary observations, &c., &c. Diagrams of physical diagnosis, sphygmograms, &c., are inserted as required in the journals; and thus after a while there is built up gradually a completed record of the case, up to the moment of dismissal from the hospital, or of death.

6. Such are our hospital journals, the raw material, so to speak, of our clinical lectures and instructions. It is clearly and manifestly impossible that all the members of a clinical class shall be even present, much less participate in the observation and verification of each individual fact; but our aim is so to work *together* in all things, and so to record the results of our work, that every member of the class shall feel, as it were, with the force of personal conviction, that the statements so recorded are such as he *might* possibly have verified, had he happened to be present at the time. And not unfrequently, the actual verification takes place, in the case of unusual, or

striking, or typical phenomena which from their nature can be submitted to larger numbers, before these larger numbers, or even before the entire class, on one or other of the lecture days above mentioned. But obviously, such verifications, or conjoint observations, must be of a very select kind; for with every increase in the number of observers it is absolutely necessary to diminish the area, so to speak, of the facts observed. Thus it is possible, without fatigue or risk, to demonstrate the more glaring râles over a single point of the lung surface, or a well-marked cardiac bruit, or an irregularity in the pupils, or a well-defined percussion-dulness or tumour, to a large number comparatively; but if, as is usually the case, the more critical investigation of any of these requires more than the mere statement of the fact—if the murmur has to be traced to its source, or studied as to its law of diffusion; if the râles have to be followed out with relation to their distribution, or associated with other facts, such as the alterations of the respiratory murmur in different parts of the chest, then the bare physical possibilities of personal verification by numbers become correspondingly limited. Hence in our more numerous assemblages, whether on days subject to roll-call or not, we find it often necessary to elect two or at most three representative men out of the class, to whom, in detail, the more difficult or complicated observations are committed, and their impressions, told singly and in presence of the whole class, are discussed, controverted, verified or rejected, as the basis of direct observation on which the diagnosis is to proceed, or the principles of treatment are to be brought into question. And here, also, we use the hospital record as supplementary to direct or personal observation; always with the understanding that the hospital record itself has been the result of previous observations made and controlled, as far as possible, by like methods of verification in detail.

7. Lastly, the clinical *lecture* proper, *i.e.*, apart from the ward altogether, which, as a rule, we give once a week to the whole class, is no ambitious performance, nor display of learning or of eloquence on the part of the lecturer, but simply, as

far as possible, an outgrowth from the labours of the preceding week, or month, or more, as the case may be, of duty in the wards. Facts and phenomena previously observed separately, are here discussed in correlation; cases which have terminated or passed out of view, are treated in *résumé*, and the most obvious conclusions arising out of them as to treatment, or prognosis, or pathology—such inferences, in short, as would have been out of place in the wards, are shortly indicated. And considering that we have already, in this Western Infirmary and these wards of ours during only three years, since 1874, accumulated some hundreds of cases, and almost a score of volumes of records, compiled throughout with the same anxious care for the verification of every detail, we sometimes seek back, as it were, upon our own previous clinical experience, partially remembered, it may be, by the seniors among you, or at least open to your inspection and comparison in detail, with the cases more immediately before us. Sometimes, but more rarely, we pass beyond the bounds of what may be called our conjoint experience in this hospital, and supplement it by more general statements founded on a wider area of experience.

Such, gentlemen, is our clinical method, briefly, but I hope comprehensively, stated. You will observe at once that it is widely different from that ascribed by rumour to an old friend of mine, who still lives, but who has survived all his ambitions, and will, I am sure, pardon me the use of this illustration. I happened to attend, long ago, the earlier part of the first course of clinical lectures delivered by this gentleman, and I was struck by the remarkably complete and exhaustive manner in which each whole subject was brought into view upon the basis, usually of a single case in the wards, which was simply read to us out of the journal by way of introduction, or text, so to speak. The current rumour was that the course of lectures in question had been elaborated in the course of the preceding summer, being written down every word in an exactly ordered fashion, according to all the respected author's previous experience and reading; so that the cases, as they occurred,

were fitted into the lectures, instead of the lecture being adapted to the cases. It was a well-marked example of the method called by the logicians ὕστερον πρότερον. But I am often reminded of this way of clinical lecturing by the reports I read in the medical journals, of dissertations, often by very able men, and therefore well worth reading, on subjects requiring both elaborate treatment and complex illustration, far beyond the scope of individual experience and especially of hospital experience; which nevertheless seem to have been delivered, for some reason hard to be understood, under the title of clinical lectures. Of such dissertations we may say, almost as the French Marshal said of the Balaclava charge—"C'est magnifique; mais ce n'est pas la guerre;"—they may be admirable in their way, but they are not clinical. In this hospital I hope you will find throughout, even now, a rigidly clinical system of instruction, thoroughly worked out by each physician and surgeon. It is within my hopes and aspirations, that as its wards are extended, as its resources are developed, and as its out-practice is made even more available for your instruction than now, it may become a great co-operative institute of clinical teaching, in all respects commensurate with the wants of this great medical school.

GLASGOW
Printed at the University Press
BY ROBERT MACLEHOSE, 153 WEST NILE STREET.